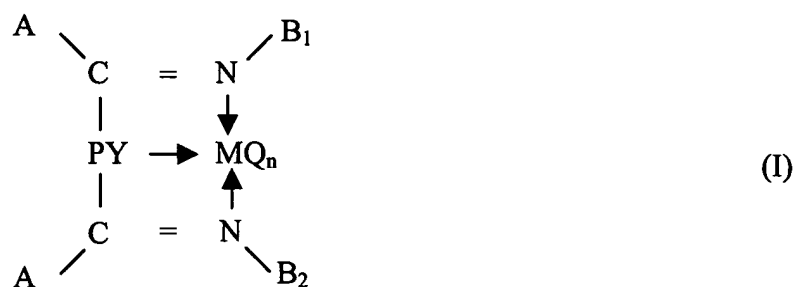


ABSTRACT

Ethylene polymerization processes employing bis-imino pyridinyl transition metal components which exhibit C₂, C_{2v} or C_s symmetry. Catalyst components of the same or different symmetries may be employed to control polymerization characteristics and characteristics of the resulting polymer products such as polymer yield and polymer molecular weight. The transition metal catalyst component is characterized by the formula:



wherein M is a Group 4-11 transition metal, n is an integer within the range of 1-3, Q is a halogen or a C₁ – C₂ alkyl group, and PY is a pyridinyl group which is coordinated with M through the nitrogen atom of the pyridinyl group. Further, with respect to formula (I), A is a methyl group, a phenyl group, or a substituted phenyl group and B₁ and B₂ are the same or different aromatic groups depending on the symmetry of the catalyst component. The catalyst component and an activating co-catalyst component are contacted with ethylene in a polymerization reaction zone which is free of hydrogen or contains hydrogen in an amount which is less than 5 mole % of the ethylene under polymerization conditions to produce a polymer product which can be a ethylene homopolymer or a copolymer of ethylene and C₃₊ alpha olefin, specifically an ethylene-propylene copolymer.